United States Standards for Grades of Frozen Fried Fish Portions

§ 264.401 Description of the product.

Frozen fried fish portions are clean, wholesome, uniformly shaped, unglazed masses of cohering pieces (not ground) of fish flesh coated with breading and partially cooked. The portions are cut from frozen fish blocks; coated with a suitable, wholesome batter and breading; are fried, packaged, and frozen in accordance with good manufacturing practices. They are maintained at temperatures necessary for preservation of the product. Frozen fried fish portions weigh more than 1-1/2 ounces and are at least three-eighths of an inch thick. All portions in an individual package are prepared from the flesh of one species of fish.

§ 264.402 Composition of the product.

(a) Frozen fried fish portions shall contain 65 percent by weight of fish flesh determined by the official end-product method as set forth in § 264.421(f). Fish flesh content may be determined by the on-line method as set forth in § 264.421(g): *Provided*, That the results are consistent with the fish flesh content requirement of 65 percent by weight, when verified by the official end-product method.

(b) Production methods employed in official establishments shall be kept relatively constant for each production lot so as to minimize variation in any factors that may affect the relative fish flesh content.

§ 264.403 Grades.

(a) "U.S. Grade A" is the quality of frozen fried fish portions that:

(1) Possess good flavor and odor and
(2) Rate a total score of not less than 85 points for those factors of quality that are rated in accordance with the scoring system outlined elsewhere in this part.

(b) "U.S. Grade B" is the quality of frozen fried fish portions that:

(1) Possess at least reasonably good flavor and odor and
(2) Rate a total score of not less than 70 points for those factors of quality that are rated in accordance with the scoring system outlined in this part.

(c) "Substandard" is the quality of frozen fried fish portions that meet the requirements of § 264.401 Description of product, but otherwise fail to meet the requirements of "U.S. Grade B."

§ 264.411 Determination of the grade.

The grade is determined by examining the product in the frozen and cooked states and is evaluated by considering the following factors:

(a) *Factors rated by score points.* Points are deducted for variations in the quality of each factor in accordance with the schedule in Table 1. The total of points deducted is subtracted from 100 to obtain the score. The maximum score is 100; the minimum score is 0.

(b) *Factors not rated by score points.* The factor of "flavor and odor" is evaluated sensorically by smelling and tasting, after the product has been cooked in accordance with § 264.421.

(1) Good flavor and odor (essential requirements for a Grade A product) means that the cooked product has the typical flavor and odor of the indicated species of fish and of the breading and is free from rancidity, bitterness, staleness, and off-flavors and off-odors of any kind.

(2) Reasonably good flavor and odor (minimum requirements of a Grade B product) means that the cooked product is lacking in good flavor and odor but is free from objectionable off-flavors and off-odors of any kind.

§ 264.421 Definitions.

(a) Selection of the sample unit: The sample unit shall consist of 10 frozen fried fish portions taken at random from one or more packages as

required. The portions are spread out on a flat pan or sheet and are examined according to Table 1. Definitions of factors for point deductions are as follows:

(b) Examination of sample, frozen state:

(1) "Condition of package" refers to the presence in the package of free excess oil and/or loose breading and/or loose frost.

(2) "Ease" of separation refers to the difficulty of separating portions from each other or from packaging material that are frozen together after the frying operation and during the freezing.

(3) "Broken portion" means a portion with a break or cut equal to or greater than one-half the width or length of the portion.

(4) "Damaged portion" means a portion that has been mashed, physically or mechanically injured, misshaped or mutilated to the extent that its appearance is materially affected. The amount of damage is measured by using a grid composed of squares 1/4-inch (that is, squares with an area of 1/16 square inch each) to measure the area of the portion affected. Deductions are not made for damage less than 1/16 square inch.

(5) "Uniformity of size" refers to the degree of uniformity in length and width of the frozen portions. Deviations are measured from the combined lengths of the two longest minus the combined lengths of the two shortest and/or the combined widths of the two widest minus the combined widths of the two narrowest. Deductions are not made for overall deviations in length or width up to 1/4-inch.

(6) "Uniformity of weight" refers to the, degree of uniformity of the weights of the portions. Uniformity is measured by the combined weight of the two heaviest portions divided by the combined weight of the two lightest portions. No deductions are made for weight ratios less than 1.20.

(c) Cooked state means the state of the product after cooking in accordance with the instructions accompanying the product. However, if specific instructions are lacking, the product for inspection is cooked as follows: Transfer the product, while still in frozen state, onto a flat pan or sheet of sufficient size to accommodate 10 portions spaced at least 1/4-inch apart. Place the pan and frozen contents in a properly ventilated oven preheated to 420°F until thoroughly cooked (about 15 to 18 minutes or to an internal temperature of 160°F).

(d) Examination of sample, cooked state:

(1) "Distortion" refers to the degree of bending of the long axis of the portions. Distortion is measured as the greatest deviation from the long axis. Deductions are not made for deviations of less than 1/4-inch.

(2) "Color" refers to the reasonably uniform color within the sample unit.

(3) "Coating defects" refers to breaks, lumps, ridges, depressions, blisters or swells and curds in the coating of the cooked product.

(i) Breaks in the coating are objectionable bare spots through which the fish flesh is plainly visible.

(ii) Lumps are objectionable outcroppings of breading on the portion surface.

(iii) Ridges are projections of excess breading at the edges of the fish flesh.

(iv) Depressions are objectionable visible voids or shallow areas that are lightly covered by breading.

(v) Blisters are measured by the swelling or exposed area in the coating resulting from the bursting or breaking of the coating.

(vi) Curd refers to crater-like holes in the breading filed with coagulated albumin.

Instances of those defects are measured by a plastic grid marked off in 1/4-inch squares (1/16 square inch). Each square is counted as 1 whether it is full or fractional.

(4) "Blemishes" refers to skin, blood spots or bruises, objectionable dark fatty flesh, carbon specks or extraneous material. Instances of blemishes refer to each occurrence measured by placing a plastic grid marked off 1/4-inch squares (1/16 square inch) over the defect area. Each square is counted as 1 whether it is full or

fractional.

(5) "Bones" means the presence of potentially harmful bones in a portion. A potentially harmful bone is one that after being cooked is capable of piercing or hurting the palate.

(6) "Texture defects of the coating" refers to the absence of the normal textural properties of the cooked coating which are crispness and tenderness. Coating texture defects are dryness, sogginess, mushiness, doughyness, toughness, pastiness, as sensed by starchiness or other sticky properties felt by mouth tissues; oiliness to the degree of impairment of texture; and/or mealiness.

(7) "Texture defects of the fish flesh" refers to the absence of the normal textural properties of the cooked fish flesh, which are tenderness, firmness, and moistness without excess water. Texture defects of the flesh are dryness, mushiness, toughness, and rubberyness.

(e) General definitions:

(1) "Small" (overall assessment) refers to a condition that is noticeable but is not seriously objectionable.

(2) "Large" (overall assessment) refers to a condition that not only is noticeable but also is seriously objectionable.

(3) "Minor" (individual assessment) refers to a defect that slightly affects the appearance and/or utility of the product.

(4) "Major" (individual assessment) refers to a defect that seriously affects the appearance and/or utility of the product.

(f) Minimum fish flesh content.

(1) End product determination – refers to the minimum percent, by weight of the average fish flesh content of three frozen raw breaded fish sticks (sample unit for fish flesh determination), as determined by the following method (AOAC Official Method 996.15 Fish Flesh Content (FFC) in Frozen Coated Fish Products):

(i) Principle

Method uses (1) combination of heat and water to breakdown adhesive properties of coating (batter and/or breading) and (2) hands to assist in determining when coating's ability to adhere to flesh's frozen surface is diminished and can be easily removed.

(ii) Apparatus

(*a*) Water baths - Primary (17-49°C [62.6-120.2°F]) and secondary (17-30°C [62.6-86°F]).
(*b*) Thermometers - Two; immersion type, capable of accurately measuring to ± 1°C.
(*c*) Thermometer holders – Two; with clips
(*d*) Balance – Capable of accurately weighing to 0.1 g.
(*e*) Stop watch – Capable of reading seconds.
(*f*) Paper towels.
(*g*) Spatula – 4-inch (ca 10 cm) blade with rounded tip.
(*h*) Nut pick.

(iii) Preparation of Test Sample

Maintain integrity of frozen test sample by storing in freezer until ready to remove batter and/or breading. Take into account all applied coating when weighing coated test samples.

(iv) Determination

Set primary water bath temperature between 17-49°C (62.6-120.2°F). Set secondary water bath temperature between 17-30°C (62.6-86°F).

Weigh and record weight of each test sample while it is hard frozen. Using hands, immerse and hold test sample in primary water bath until batter and/or breading becomes soft and can be removed easily from still-frozen flesh.

Remove test sample from water bath

and blot lightly with enough paper towel to absorb excess water. Complete blotting in ≤7 sec. Scrape and remove batter and/or breading from flesh with spatula. If batter and/or breading is difficult to remove, using hands, redip and hold partially debattered or debreaded test sample in secondary water bath until batter and/or breading becomes soft and can be removed easily from still-frozen flesh.

Remove test sample from water bath and blot lightly with enough paper towel to absorb excess water. Complete blotting in ≤7 sec. Scrape and remove batter and/or breading from flesh with spatula. When necessary, repeat redipping procedure and use nut pick to remove batter and/or breading from any voids (holes, spaces, or depressions) until all batter and/or breading has been removed from still-frozen flesh. Reweigh and record weight of debattered and/or debreaded test sample.

(Note: Several preliminary trials may be necessary to determine optimum water bath temperatures, dip times, and number of dips required for debattering and/or debreading test samples. The correct dip time is the minimum time of immersion in water baths required before batter and/or breading on test sample can be scraped off easily, provided that debattered or debreaded test sample is still solidly frozen.)

As a guide, no more than 1 initial dip (17-49°C [62.6-120.2°F]) and 2 redips (17-30°C [62.6-86°F]) for a maximum of 2.5, 0.5, and 0.5 minutes, respectively, should be necessary.

(v) Calculations

Calculate the content of fish flesh, percent in test sample as follows:

$$\% \text{ Flesh} = (W_a/W_b) \times 100 + 4$$

where W_a = weight of debattered and/or debreaded test sample; W_b = weight of battered and/or breaded test sample; 4 = adjustment factor.[1]

(ii) On-line determination. The on-line method is appropriate for use during the processing of frozen coated fish portions with declared portion weight or declared number of portions in the container and declared net weight. The adjustment factors that are used with the en-product (scrape) method are **not** used for the on-line method.

(1) The on-line fish flesh content determination shall be according to the lot size and number of sample units specified in the regulations governing processed fishery products, 50 CFR 260.61, Table II, V or VI as applicable. Each sample unit shall consist of three groups of five frozen, non-coated (raw) fish portions.

(2) The on-line method to determine the percent fish flesh by weight is based on the average weight of three groups of five frozen, non-coated (raw), portions (sample unit for on-line fish flesh determination) divided by the declared net weight of five frozen coated fish portions.

(3) The method is as follows:

(i) Equipment: balance accurate to 0.01 g.

(ii) Procedure:

(*a*) For each sample unit, weigh three groups of five frozen, non-coated (raw) portions from the line. The frozen, non-coated portions should be selected at random in such a manner so as to secure a representative sample unit. Average the weight of the three groups and record.

(*b*) The percent fish flesh of the sample unit is calculated by

[1] Based on the results of a collaborative study, it was determined than an adjustment to the determined percent fish flesh for the end-product method was warranted for compliance purposes.

dividing the average weight of three groups of five frozen non-coated (raw) portions from #2a by the declared net weight of five frozen, coated portions.

(*1*) In the case where the individual portion weight appears on the label, it is unnecessary to calculate the weight of an individual frozen, coated portion.

(*2*) In the case where the portion weight does not appear on the label, the weight of an individual frozen, coated portion is calculated by dividing the declared net weight by the declared number of portions on the label.

§ **264.425 Tolerances for certification of officially drawn samples**.

The sample rate and grades of specific lots shall be certified in accordance with Part 260, Subpart A of this chapter (Regulations Governing Processed Fishery Products).

TABLE 1 -SCHEDULE OF POINT DEDUCTIONS PER SAMPLE UNIT OF 10 PORTIONS

FACTORS SCORED	METHOD OF DETERMINING SCORE	DEDUCT
	FROZEN STATE	
1. Condition of package	Small degree: Loose free oil, and/or moderate loose breading and/or moderate frost	3
	Large degree: Oil soaking through package and/or excessive loose breading and/or excessive amount frost	6
2. Ease of separation	Minor: Hand separated with difficulty. Each affected	1
	Major: Separated only by knife or other instrument. Each affected	2
3. Broken portion	Break or cut greater than 1/2 length width. Each affected	10
4. Damaged portion	Mashed, mechanically and/or physically injured, misshaped or mutilated[1]	
	Minor: 1 to 3 instances. Each affected	2
	Major: Over 3 instances. Each affected	4
5. Uniformity of Size	Deviation in length or width between the 2 largest and 2 smallest portions is:	
	Up to 1/4-inch	0
	Over 1/4-inch and up to 1/2-inch	3
	Over 1/2-inch	10
6. Uniformity of Weight	Weight ration of 2 heaviest divided by the 2 lightest sticks:	
	Over 1.0 but not over 1.20	0
	Over 1.20 but not over 1.3	3
	Over 1.3 but not over 1.4	6
	Over 1.4	10
	COOKED STATE	
7. Distortion	Major: Bending, shrinking, twisting (1/4- to 1/2-inch). Each affected	1
	Minor: Excessive bending, shrinking, twisting (over 1/2-inch). Each affected	2
8. Color	Minor: Portions differing slightly from average color of portions in sample unit. Each affected	2 4
	Major: Portions excessively darker or lighter from average color of portions in sample unit. Each affected	
9. Coating defects	Bare spots, blistering, ridges, breaks, curds[1]	
	Minor: 1 to 3 instances. Each affected	1
	Major: Over 3 instances. Each affected	3
10. Blemishes	Skin, blood spots, bruises and discolorations[1]	
	Minor: 1 to 6 instances. Each affected	1
	Major: Over 6 instances. Each affected	3
11. Bones	Portions containing bones (potentially harmful). Each affected	10
	TEXTURE	
12. Coating	Small degree: Moderately dry, soggy, doughy, oily and/or tough	5
	Large degree: Farinaceous (mealy), pasty, very tough and/or oily	10
13. Fish Flesh	Small degree: Moderately dry, soft, mushy	5
	Large degree: Dry to point of fibrousness, very mushy tough, and/or rubbery	15

[1]An instance = each 1/16 square inch (1/4-inch square).